

## CLAIMS

What is claimed is:

1. A thermoelectric module, comprising: a plurality of thermoelectric materials with opposed polarity connected by a first and a second conductive element wherein such thermoelectric materials are configured according to respective coating layers applied on at least one of the conductive elements.
2. The module according to claim 1, wherein said coating layers have a thickness equal or less than 1  $\mu\text{m}$ .
3. The Module according to claim 2, wherein said coating layers have a thickness of about 0.1  $\mu\text{m}$ .
4. The module according to claim 3, wherein said coating layers coat respective surface portions of the conductive element, having substantially the same area.
5. The module according to claim 1, wherein said coating layers are respectively made of platinum and tellurium.
6. The module according to claim 1, wherein said coating layers are respectively made of platinum and selenium.
7. The module according to claim 1, wherein said coating layers are respectively made with a Ni-Cr alloy doped with C, Si,Fe, and a Ni-Cu alloy doped with C,Si,Mn,Cr,Fe,S.
8. The module according to claim 1, wherein said conductive elements are straps made of copper, aluminum or other conductive metal, and wherein the coating layers coat one face of the relative strap.
9. The module according to claim 8, wherein the straps are kept pressed one against the other thereby providing a good contact between at least one of the coating layers and the other strap.
10. The module according to claim 8, wherein the straps have the shape of a parallelepiped.
11. The module according to claim 8, wherein the strap has a thickness less than 10 mm.
12. A thermoelectric generator, comprising: a plurality of modules which include a first conductive strap with a face coated by layers of thermoelectric material having opposed polarity, and a second conductive strap for the electric connection of such

layers, wherein the second strap is juxtaposed to the first strap so as to connect one of the thermoelectric layers thereof with the layer of opposed polarity of an adjacent strap, thereby connecting in series the respective modules.

13. The generator according to claim 12, wherein the second strap is not coated with thermoelectric layers.
14. The generator according to claims 12, further comprising means for heating and/or cooling the straps.
15. The generator according to claim 14, wherein the means for heating and cooling the straps comprises respectively the condenser and the evaporator of a refrigerating apparatus.
16. A thermoelectric generator comprising: a plurality of conductive straps which have a face coated with thermoelectric layers of opposed polarity, stacked one upon the other.
17. The generator according to claim 16, wherein the straps are stacked in an offset condition with their ends protruding from sides of the piles.
18. The generator according to claims 16, further comprising means for heating and/or cooling the straps.
19. The generator according to claim 18, wherein the means for heating and cooling the straps comprises respectively the condenser and the evaporator of a refrigerating apparatus.